

JAF/TAB

# PATENT COOPERATION TREATY

From the

INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

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NOTIFICATION OF TRANSMITTAL OF  
INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Rule 71.1)

Date of mailing  
(day/month/year)

16 NOV 2006

Applicant's or agent's file reference  013670-9003-WO00		IMPORTANT NOTIFICATION	
International application No.  PCT/US04/37932	International filing date (day/month/year)  12 November 2004 (12.11.2004)	Priority date (day/month/year)  14 November 2003 (14.11.2003)	
Applicant  INTEGRATED DNA TECHNOLOGIES, INC.			

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

#### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the *PCT Applicant's Guide*.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed invention is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the IPEA/ US  Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450  Facsimile No. (571) 273-3201	Authorized officer  Fiona T. Powers Telephone No. 571-272-1600  <i>Janice Ford</i> for
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# PATENT COOPERATION TREATY

## PCT

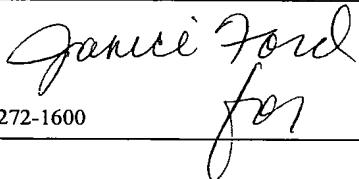
### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 013670-9003-W000	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. PCT/US04/37932	International filing date ( <i>day/month/year</i> ) 12 November 2004 (12.11.2004)	Priority date ( <i>day/month/year</i> ) 14 November 2003 (14.11.2003)	
International Patent Classification (IPC) or national classification and IPC IPC: C09B 29/01 (2007.01), 29/08 (2007.01); C12Q 1/68 (2007.01); C07H 21/04 (2007.01) USPC: 534/727, 839; 435/6			
Applicant INTEGRATED DNA TECHNOLOGIES, INC.			

<ol style="list-style-type: none"> <li>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</li> <li>2. This REPORT consists of a total of <u>7</u> sheets, including this cover sheet.</li> <li>3. This report is also accompanied by ANNEXES, comprising:           <ol style="list-style-type: none"> <li>a. <input type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of <u>  </u> sheets, as follows:               <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"><input type="checkbox"/></td> <td style="width: 90%;">sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</td> </tr> <tr> <td><input type="checkbox"/></td> <td>sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</td> </tr> </table> </li> <li>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) <u>  </u>, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</li> </ol> </li> </ol>	<input type="checkbox"/>	sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).	<input type="checkbox"/>	sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.												
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<input type="checkbox"/>	sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.															
<ol style="list-style-type: none"> <li>4. This report contains indications relating to the following items:           <table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 90%;">Box No. I Basis of the report</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. II Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII Certain defects in the international application</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. VIII Certain observations on the international application</td> </tr> </table> </li> </ol>	<input checked="" type="checkbox"/>	Box No. I Basis of the report	<input type="checkbox"/>	Box No. II Priority	<input type="checkbox"/>	Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI Certain documents cited	<input type="checkbox"/>	Box No. VII Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII Certain observations on the international application
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<input checked="" type="checkbox"/>	Box No. VIII Certain observations on the international application															

Date of submission of the demand 03 June 2005 (03.06.2005)	Date of completion of this report 30 October 2006 (30.10.2006)
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer Fiona T. Powers  Telephone No. 571-272-1600

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on:

the international application in the language in which it was filed.

a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of:

international search (under Rules 12.3 and 23.1(b))

publication of the international application (under Rule 12.4(a))

international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

the international application as originally filed/furnished

the description:  
pages 1-23 \_\_\_\_\_ as originally filed/furnished  
pages\* NONE \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
pages\* NONE \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the claims:  
pages 24-29 \_\_\_\_\_ as originally filed/furnished  
pages\* NONE \_\_\_\_\_ as amended (together with any statement) under Article 19  
pages\* NONE \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
pages\* NONE \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the drawings:  
pages 1/1 \_\_\_\_\_ as originally filed/furnished  
pages\* NONE \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
pages\* NONE \_\_\_\_\_ received by this Authority on \_\_\_\_\_

a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3.  The amendments have resulted in the cancellation of:

the description, pages NONE \_\_\_\_\_

the claims, Nos. NONE \_\_\_\_\_

the drawings, sheets/figs NONE \_\_\_\_\_

the sequence listing (*specify*): NONE \_\_\_\_\_

any table(s) related to the sequence listing (*specify*): NONE \_\_\_\_\_

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages \_\_\_\_\_

the claims, Nos. \_\_\_\_\_

the drawings, sheets/figs \_\_\_\_\_

the sequence listing (*specify*): \_\_\_\_\_

any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/US04/37932**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

## 1. Statement

Novelty (N)      Claims 4, 6, 7, 9, 10, 16, 19-41      YES  
                      Claims 1-3, 5, 8, 11-15, 17, 18      NO

Inventive Step (IS)      Claims 4, 6, 7, 9, 10, 16, 19-41      YES  
                      Claims 1-3, 5, 8, 11-15, 17, 18      NO

Industrial Applicability (IA)      Claims 1-41      YES  
                      Claims NONE      NO

## 2. Citations and Explanations (Rule 70.7)

Please See Continuation Sheet

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

International application No.

PCT/US04/37932

**Box No. VIII Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 2, 20 and 21 are objected to under PCT Rule 66.2(a)(v) as lacking clarity under PCT Article 6 because claims 2, 20 and 21 are indefinite for the following reason(s): in claim 2, R is not defined. In claims 20 and 21 CEP is not defined.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US04/37932

## Supplemental Box Relating to Sequence Listing

## Continuation of Box No. I, item 2:

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this report was established on the basis of:

## a. type of material

a sequence listing  
 table(s) related to the sequence listing

## b. format of material

on paper  
 in electronic form

## c. time of filing/furnishing

contained in the international application as filed  
 filed together with the international application in electronic form  
 furnished subsequently to this Authority for the purposes of search and/or examination  
 received by this Authority as an amendment\* on \_\_\_\_\_

2.  In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

## 3. Additional comments:

\* If item 4 in Box No. I applies, the listing and/or table(s) related thereto, which form part of the basis of the report, may be marked "superseded."

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

**V. 2. Citations and Explanations:**

Claims 1 to 3, 5, 8, 11 to 15, 17 and 18 lack novelty under PCT Article 33(2) as being anticipated by Hamprecht et al (DE 2546535) or Japanese Patent 52-91031.

The references disclose the claimed chemical composition of the Formula 1 wherein R<sub>2</sub> is an electron withdrawing group which is halogen, NO<sub>2</sub> or CN and R<sub>7</sub> is a substituted aryl group which is an anilyl group of the Formula 2 where L and L' are linking groups which may be nonreactive and may comprise a hydroxyethyl group in which the hydroxy group may be protected. Note Examples 1-17 of Hamprecht et al. and the examples of JP 52-91031.

Claims 1 to 3, 5, 8, 11 and 12 lack novelty under PCT Article 33(2) as being obvious over Japanese Patent 52-088681.

The reference discloses the claimed chemical composition of the Formula 1 wherein R<sub>2</sub> is an electron withdrawing group which is NO<sub>2</sub> and R<sub>7</sub> is a substituted aryl group which is a naphthyl group. Note the examples.

Claims 1, 2, 5, 8, 11 and 12 lack novelty under PCT Article 33(2) as being obvious over Elslager et al. (US 3218309).

The reference discloses the claimed chemical composition of the Formula 1 wherein at least one of R<sub>1-6</sub> is hydrogen and R<sub>7</sub> is a substituted aryl group which is a naphthyl group. Note column 8, lines 59 to 60.

Claims 1, 2, 5, 8, 11 to 15, 17 and 18 lack novelty under PCT Article 33(2) as being obvious over Ho et al.

The reference discloses the claimed chemical composition of the Formula 1 wherein at least one of R<sub>1-6</sub> is hydrogen and R<sub>7</sub> is a substituted aryl group which is an anilyl group of the Formula 2 wherein one of L and L' is a nonreactive linking group and the other is a hydroxyethyl group which may be protected. Note pages 6124-6125 NDR1M.

## Supplemental Box

Claims 1 to 3, 5, 8, 11 to 15, 17 and 18 lack an inventive step under PCT Article 33(3) as being obvious over Hamprecht et al (DE 2546535) or Japanese Patent 52-91031.

The references disclose the claimed chemical composition of the Formula 1 wherein R<sub>2</sub> is an electron withdrawing group which is halogen, NO<sub>2</sub> or CN and R<sub>7</sub> is a substituted aryl group which is an anilyl group of the Formula 2 where L and L' are linking groups which may be nonreactive and may comprise a hydroxyethyl group in which the hydroxy group may be protected. Note Examples 1-17 of Hamprecht et al. and the examples of JP 52-91031. One of ordinary skill in the art would have been motivated to make additional compounds useful as dyes by modifying the linking groups of compounds disclosed by the references.

Claims 1 to 3, 5, 8, 11 and 12 lack an inventive step under PCT Article 33(3) as being obvious over Japanese Patent 52-088681.

The reference discloses the claimed chemical composition of the Formula 1 wherein R<sub>2</sub> is an electron withdrawing group which is NO<sub>2</sub> and R<sub>7</sub> is a substituted aryl group which is a naphthyl group. Note the examples. One of ordinary skill in the art would have been motivated to make additional compounds useful as dyes by modifying the linking groups of compounds disclosed by the reference.

Claims 1, 2, 5, 8, 11 and 12 lack an inventive step under PCT Article 33(3) as being obvious over Elslager et al. (US 3218309).

The reference discloses the claimed chemical composition of the Formula 1 wherein at least one of R<sub>1-6</sub> is hydrogen and R<sub>7</sub> is a substituted aryl group which is a naphthyl group. Note column 8, lines 59 to 60. One of ordinary skill in the art would have been motivated to make additional compounds useful as dyes by modifying the linking groups of compounds disclosed by the reference.

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The reference discloses the claimed chemical composition of the Formula 1 wherein at least one of R<sub>1-6</sub> is hydrogen and R<sub>7</sub> is a substituted aryl group which is an anilyl group of the Formula 2 wherein one of L and L' is a nonreactive linking group and the other is a hydroxyethyl group which may be protected. Note pages 6124-6125 NDR1M. One of ordinary skill in the art would have been motivated to make additional compounds useful as dyes by modifying the linking groups of compounds disclosed by the reference.

Claims 4, 6, 7, 9, 10, 16 and 19 to 41 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest the compositions of the Formula 1 as defined by the claims, the method of hybridizing nucleic acid polymers or the method for synthesizing an oligonucleotide containing a fluorescent quenching composition.

Claims 1 to 41 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.